Appendix B

SAMPLING AND DESIGN MATRIX
FALCON REFINERY SUPERFUND SITE
INGLESIDE, TEXAS

SAMPLING AREA	SAMPLE METHOD	Judgmental or Random	SAMPLE INTERVAL (feet bgs)	FIELD SCREENING	SAMPLE COLLECTION DESCRIPTION/ FREQUENCY	ANALYSES											
						TCL VOC	TCL SVOC	TAL METALS	Dissolved Metals	AVS/SEM	TOC	Particle Size	TSS	Tributyltin	PCBs	PCBs Congeners	Herbicides and Pesticides
SOIL SAMPLES - SURFACE AND SUBSURFACE																	
DIRECT PUSH BORINGS																	
AOC-1N	Direct Push -Continuous Sampling with Acetate Liner	Judgmental	0 to 0.5	Continuous screening with FID/PID at 2-foot intervals from surface to total depth	VOCs - collect grab sample from 0 to 0.5 feet and 0.5 to 2 feet. From 2 feet to top of water table collect sample from interval with highest PID measurement. For all other analysis homogenize sample interval and collect sample.	8	8	8	0	0	8	8	0	0	0	0	0
			0.5 to 2			8	8	8	0	0	8	8	0	0	0	0	0
			2 to top of water table			8	8	8	0	0	8	8	0	0	0	0	0
AOC-1S		Judgmental	0 to 0.5			12	12	12	0	0	12	12	0	0	0	0	0
			0.5 to 2			12	12	12	0	0	12	12	0	0	0	0	0
			2 to top of water table			12	12	12	0	0	12	12	0	0	0	0	0
AOC-2		Judgmental	0 to 0.5			6	6	6	0	0	6	6	0	0	0	0	0
			0.5 to 2			6	6	6	0	0	6	6	0	0	0	0	0
			2 to top of water table			6	6	6	0	0	6	6	0	0	0	0	0
AOC-3		Random	0 to 0.5			3	3	3	0	0	3	3	0	0	0	0	0
			0.5 to 2			3	3	3	0	0	3	3	0	0	0	0	0
			2 to top of water table			3	3	3	0	0	3	3	0	0	0	0	0
AOC-4		Judgmental	0 to 0.5			5	5	5	0	0	5	5	0	0	0	0	0
			0.5 to 2			5	5	5	0	0	5	5	0	0	0	0	0
			2 to top of water table			5	5	5	0	0	5	5	0	0	0	0	0
AOC-6		Judgmental	0 to 0.5			2	2	2	0	0	2	2	0	0	0	0	0
			0.5 to 2			2	2	2	0	0	2	2	0	0	0	0	0
			2 to top of water table			2	2	2	0	0	2	2	0	0	0	0	0
AOC-7		Judgmental	0 to 0.5			2	2	2	0	0	2	2	0	0	0	0	0
			0.5 to 2			2	2	2	0	0	2	2	0	0	0	0	0
			2 to top of water table			2	2	2	0	0	2	2	0	0	0	0	0
Background		Judgmental	0 to 0.5			10	10	10	0	0	10	10	0	0	0	0	0
			0.5 to 2			10	10	10	0	0	10	10	0	0	0	0	0
			2 to top of water table			10	10	10	0	0	10	10	0	0	0	0	0
TOTAL DIRECT PUSH BORING SOIL SAMPLES						**144**	**144**	**144**	**0**	**0**	**144**	**144**	**0**	**0**	**0**	**0**	**0**
MONITORING WELL BORINGS																	
AOC-1N	Hollow Stem Auger Continuous sampling with split spoon or continuous sampling device	Judgmental	0 to 0.5	Continuous screening with FID/PID at 2-foot intervals from surface to total depth	VOCs - collect grab sample from 0 to 0.5 feet and 0.5 to 2 feet. From 2 feet to top of water table collect sample from interval with highest PID measurement. For all other analysis homogenize sample interval and collect sample.	5	5	5	0	0	5	5	0	0	0	0	0
			0.5 to 2			5	5	5	0	0	5	5	0	0	0	0	0
			2 to top of water table			5	5	5	0	0	5	5	0	0	0	0	0
AOC-1S		Judgmental	0 to 0.5			7	7	7	0	0	7	7	0	0	0	0	0
			0.5 to 2			7	7	7	0	0	7	7	0	0	0	0	0
			2 to top of water table			7	7	7	0	0	7	7	0	0	0	0	0
AOC-2		Judgmental	0 to 0.5			1	1	1	0	0	1	1	0	0	0	0	0
			0.5 to 2			1	1	1	0	0	1	1	0	0	0	0	0
			2 to top of water table			1	1	1	0	0	1	1	0	0	0	0	0
AOC-3		Judgmental	0 to 0.5			3	3	3	0	0	3	3	0	2	0	0	0
			0.5 to 2			3	3	3	0	0	3	3	0	0	0	0	0
			2 to top of water table			3	3	3	0	0	3	3	0	0	0	0	0
AOC-4		Judgmental	0 to 0.5			1	1	1	0	0	1	1	0	0	0	0	0
			0.5 to 2			1	1	1	0	0	1	1	0	0	0	0	0
			2 to top of water table			1	1	1	0	0	1	1	0	0	0	0	0
TOTAL MONITORING WELL BORING SOIL SAMPLES						**51**	**51**	**51**	**0**	**0**	**51**	**51**	**0**	**2**	**0**	**0**	**0**
TOTAL SURFACE AND SUBSURFACE SOIL SAMPLES						**195**	**195**	**195**	**0**	**0**	**195**	**195**	**0**	**2**	**0**	**0**	**0**

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SAMPLING AND DESIGN MATRIX
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INGLESIDE, TEXAS

SAMPLING AREA	SAMPLE METHOD	Judgmental or Random	SAMPLE INTERVAL (feet bgs)	FIELD SCREENING	SAMPLE COLLECTION DESCRIPTION/ FREQUENCY	ANALYSES											
						TCL VOC	TCL SVOC	TAL METALS	Dissolved Metals	AVS/SEM	TOC	Particle Size	TSS	Tributyltin	PCBs	PCBs Congeners	Herbicides and Pesticides
QC FOR SURFACE AND SUBSURFACE SOIL SAMPLES																	
QC MS/MSD* {1/20 organics}		Various	Various	Not Applicable	As stated above for each designated sample location	10	10	N/A	0	0	N/A	N/A	0	1	0	0	0
QC MS/MD* {1/20 inorganics}		Various	Various			N/A	N/A	10	0	0	N/A	N/A	0	N/A	0	0	0
QC field duplicate {1/10}		Various	Various			20	20	20	0	0	20	20	0	1	0	0	0
QC trip blank (water sample)		N/A	N/A		1 per VOC cooler	14	N/A	N/A	0	0	N/A	N/A	0	N/A	0	0	0
QC Equipment Rinsate (water sample)		N/A	N/A		1 per day per nondedicated equipment	N/A	25	25	0	0	N/A	N/A	0	N/A	0	0	0
TOTAL QC						**30**	**30**	**30**	**0**	**0**	**20**	**20**	**0**	**2**	**0**	**0**	**0**
TOTAL SOIL SAMPLES INCLUDING QC - SOLID SAMPLES						**225**	**225**	**225**	**0**	**0**	**215**	**215**	**0**	**4**	**0**	**0**	**0**
TOTAL WATER QC SAMPLES ASSOCIATE WITH SOIL SAMPLES						**14**	**25**	**25**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
SEDIMENT SAMPLES																	
AOC-3	Ponar/Sediment Coring Device	Judgmental	0 to 0.5	Not Applicable	Grab Samples	0	0	0	0	0	0	0	0	0	0	0	0
AOC-5	Ponar/Sediment Coring Device	Judgmental	0 to 0.5			10	10	10	0	10	10	10	0	0	0	0	0
Background	Ponar/Sediment Coring Device	Judgmental	0 to 0.5		Grab Samples - 10 samples collected from marine/coastal and 10 from the wetlands	20	20	20	0	0	20	20	0	0	0	0	0
TOTAL SEDIMENT SAMPLES						**30**	**30**	**30**	**0**	**10**	**30**	**30**	**0**	**0**	**0**	**0**	**0**
QC FOR SEDIMENT SAMPLES																	
QC MS/MSD* {1/20 organics}		Various	Various	Not Applicable	As stated above for each designated sample location	2	2	N/A	0	N/A	N/A	N/A	0	0	0	0	0
QC MS/MD* {1/20 inorganics}		Various	Various			N/A	N/A	2	0	1	N/A	N/A	0	N/A	0	0	0
QC field duplicate {1/10}		Various	Various			3	3	3	0	1	3	3	0	0	0	0	0
QC trip blank (water sample)		N/A	N/A		1 per VOC cooler	3	N/A	N/A	0	N/A	N/A	N/A	0	N/A	0	0	0
QC equipment rinsate (water sample)		N/A	N/A		1 per day per nondedicated equipment	N/A	8	8	0	N/A	N/A	N/A	0	N/A	0	0	0
TOTAL QC						**5**	**5**	**5**	**0**	**2**	**3**	**3**	**0**	**0**	**0**	**0**	**0**
TOTAL SEDIMENT SAMPLES INCLUDING QC - SOLID SAMPLES						**35**	**35**	**35**	**0**	**12**	**33**	**33**	**0**	**0**	**0**	**0**	**0**
TOTAL WATER SAMPLES ASSOCIATED WITH SEDIMENT SAMPLES						**3**	**8**	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
SURFACE WATER SAMPLES																	
AOC-3	Disposable Dipper	Random	Not Applicable	pH, specific conductance, temperature, TDS, ORP, and turbidity	Grab Samples	3	3	3	3	0	0	0	3	0	0	0	0
		Judgmental	Not Applicable			0	0	0	0	0	0	0	0	0	0	0	0
AOC-5		Judgmental	Not Applicable			10	10	10	10	0	0	0	10	0	0	0	0
Background		Judgmental	Not Applicable		Grab Samples - 10 samples collected from marine/coastal and 10 from the wetlands	20	20	20	20	0	0	0	20	0	0	0	0
TOTAL SURFACE WATER SAMPLES						**33**	**33**	**33**	**33**	**0**	**0**	**0**	**33**	**0**	**0**	**0**	**0**
QC FOR SURFACE WATER SAMPLES																	
QC MS/MSD* {1/20 organics}		Various	Various	Not Applicable	As stated above for each designated sample location	2	2	N/A	N/A	0	0	0	N/A	0	0	0	0
QC MS/MD* {1/20 inorganics}		Various	Various			N/A	N/A	2	2	0	0	0	N/A	N/A	0	0	0
QC field duplicate {1/10}		Various	Various			4	4	4	4	0	0	0	4	0	0	0	0
QC trip blank		N/A	N/A		1 per VOC cooler	3	N/A	N/A	N/A	0	0	0	N/A	N/A	0	0	0
QC equipment rinsate		N/A	N/A		1 per day per nondedicated equipment	N/A	N/A	N/A	N/A	0	0	0	N/A	N/A	0	0	0
TOTAL QC						**9**	**6**	**6**	**6**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**
TOTAL SURFACE WATER SAMPLES INCLUDING QC						**42**	**39**	**39**	**39**	**0**	**0**	**0**	**37**	**0**	**0**	**0**	**0**

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INGLESIDE, TEXAS

SAMPLING AREA	SAMPLE METHOD	Judgmental or Random	SAMPLE INTERVAL (feet bgs)	FIELD SCREENING	SAMPLE COLLECTION DESCRIPTION/ FREQUENCY	ANALYSES											
						TCL VOC	TCL SVOC	TAL METALS	Dissolved Metals	AVS/SEM	TOC	Particle Size	TSS	Tributyltin	PCBs	PCBs Congeners	Herbicides and Pesticides
GROUND WATER SAMPLES																	
AOC-1N	Low Flow Sampling	Judgmental	Not Applicable	Not Applicable	Grab Sample	5	5	5	5	0	0	0	0	0	0	0	0
AOC-1S						7	7	7	7	0	0	0	0	0	0	0	0
AOC-2						1	1	1	1	0	0	0	0	0	0	0	0
AOC-3						3	3	3	3	0	0	0	0	0	0	0	0
AOC-4						1	1	1	1	0	0	0	0	0	0	0	0
Background						10	10	10	10	0	0	0	0	0	0	0	0
TOTAL GROUND WATER SAMPLES						**27**	**27**	**27**	**27**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
QC FOR GROUND WATER SAMPLES																	
QC MS/MSD* {1/20 organics}		Various	Various	Not Applicable	As stated above for each designated sample location	2	2	N/A	N/A	0	0	0	0	0	0	0	0
QC MS/MD* {1/20 inorganics}		Various	Various			N/A	N/A	2	2	0	0	0	0	N/A	0	0	0
QC field duplicate {1/10}		Various	Various			3	3	3	3	0	0	0	0	0	0	0	0
QC trip blank		N/A	N/A		1 per VOC cooler	3	N/A	N/A	N/A	0	0	0	0	N/A	0	0	0
QC equipment rinsate		N/A	N/A		1 per day per nondedicated equipment	N/A	8	8	8	0	0	0	0	N/A	0	0	0
TOTAL QD						**8**	**13**	**13**	**13**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
TOTAL GROUND WATER SAMPLES INCLUDING QC						**35**	**40**	**40**	**40**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

AVS/SEM	acid volatile sulfides/simultaneously extracted metals
bgs	below ground surface
FID	Flame Ionization Detector
MD	Matrix Duplicate
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PID	Photo-ionization Detector
PCB	Polychlorinated Biphenyls
QC	Quality Control
SVOC	Semi-volatile Organic Compound
TOC	Total Organic Carbon
TSS	Total Suspended Solid
VOC	Volatile Organic Compound